

REMARKS

Claims 1, 3-13, and 15-30 are pending in the present Application. No claims have been amended, canceled, or added, leaving claims 1, 3-13, and 15-30 for consideration upon entry of this Response. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3-13, and 15-30 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over US 6,015,512 to Yang et al. Applicants respectfully traverse this rejection.

US 6,015,512 (hereinafter referred to as Yang et al.) generally discloses an extrusion-compression molding process for making ophthalmic lenses from polymeric material. Specific polymeric materials disclosed include thiourethane-urethane copolymers, polystyrene, acrylic polymers, polycarbonate, and SAN. (Yang et al., col. 3, ll. 25-28.) The reference discloses a screen changer for filtering a polymer melt. (Yang et al., col. 6, ll. 4-5.)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Independent claims 1, 26, 27, and 30 are each directed to a method of purifying a polymeric material by melt filtering a melt of poly(arylene ether) and poly(alkenyl aromatic). In each claim, the filtered polymeric material is substantially free of visible particulate impurities. As defined in the Specification as filed, “substantially free of visible particulate impurities” means

that a ten gram sample of polymeric material dissolved in fifty milliliters of chloroform (CHCl₃) exhibits fewer than 5 visible specks when viewed with the aid of a light box. Particles visible to the naked eye are typically those greater than 40 micrometers in diameter.

(Specification, [0029].)

Yang et al. fails to render obvious claims 1, 26, 27, and 30 as the reference fails to teach or suggest each and every limitation required by the claims. Particularly, two required limitations are not taught or suggested by Yang et al.

First, there is no disclosure in Yang et al. directed to melt filtering a melt of poly(arylene ether) and poly(alkenyl aromatic). Only a small set of polymers are particularly taught by the reference: thiourethane-urethane copolymers, polystyrene, acrylic polymers, polycarbonate, and SAN. (Yang et al., col. 3, ll. 25-28.) There is no suggestion of melt filtering the particular *combination* of polymers required by the claims, that is poly(arylene ether) and poly(alkenyl aromatic).

Second, Yang et al. fails to teach or suggest that the resulting filtered blend be substantially free of visible particulate impurities. As mentioned, substantially free of visible particulate impurities means fewer than 5 visible specks are observed in a ten gram sample of polymeric material dissolved in fifty milliliters of chloroform (CHCl_3) when viewed with the aid of a light box. Particles visible to the naked eye are typically those greater than 40 micrometers in diameter. There is no teaching at all about the size of particulates removed in the Yang et al. disclosure. As the reference fails to teach or suggest the stringent particle size limitation of the present claims, it fails to render claims 1, 26, 27, and 30 obvious. As claims 3-13, 15-25, and 28-29 all ultimately depend from claim 1, they too are not rendered obvious. Applicants therefore request reconsideration and withdrawal of the rejection of claims 1, 3-13, and 15-30 under 35 USC §103(a) over Yang et al.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3-13, and 15 stand rejected under 35 U.S.C. § 102(a, b, or e), as allegedly anticipated by US patent 3,457,343; JP 632564427; or JP63091231. Applicants respectfully traverse this rejection.

US 3,457,343 to van Lohuizen et al. (hereinafter referred to as van Lohuizen et al.) is generally directed to a process for wet spinning threads comprising extruding a solution of poly-2,6-disubstituted paraphenylene ethers in an aliphatic halohydrocarbon solvent through a spinneret into a coagulation bath. The reference only discloses filtering spinning *solutions*. (van Lohuizen et al., col. 6, ll. 25-27, 65; col. 8, ll. 50-51; col. 9, ll. 71; and col. 10, ll. 33.)

JP63256427 is generally directed to a resin composition of an aromatic vinyl monomer and a polyphenylene ether *in a solution* from which foreign fine particles, 1 micron or larger, are filtered prior to extrusion. (JP63256427, Claim 1, Example 1.) No melt filtering is disclosed. A translation of JP63256427 was provided to the PTO in November of 2003.

JP63091231 is generally directed to a resin composition of an aromatic vinyl monomer and a polyphenylene ether from which foreign fine particles, 1 micron or larger, are filtered such that at most 10,000 pieces/gram are left in the resin composition. Optical elements are prepared from the resin composition. A translation of JP63091231 was also provided to the PTO in November of 2003.

To anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988).

The van Lohuizen et al. reference discloses filtration of a *solution* of poly-2,6-disubstituted paraphenylene ethers in an aliphatic halohydrocarbon solvent *prior* to extrusion of the polymer solution through a spinneret. (van Lohuizen et al., examples 12-18). JP632564 discloses filtration of a *solution* of resin composition of an aromatic vinyl monomer and a polyphenylene ether *prior* to extrusion of the polymer solution. Neither of these cited references teach or suggest *melt filtering* a melt of poly(arylene ether) and poly(alkenyl aromatic) formed by melt-blending in an extruder to provide a filtered polymeric material that is substantially free of visible particulate impurities. Therefore neither reference anticipates claim 1. As claims 3-13 and 15 all ultimately depend from claim 1, they too are not anticipated by either of these references. Reconsideration and removal of the rejections are respectfully requested.

JP63091231 discloses a resin composition of an aromatic vinyl monomer and a polyphenylene ether from which foreign fine particles are removed by filtration of the solution or of the molten resin. JP63091231 however does not disclose that the residence time of the melt in the extruder is less than or equal to about 1 minute, as is required by independent claim 1. Limiting the residence time of poly(arylene ether) material in the extruder is important to reduce the heat history of the material. Indeed, a short residence time minimizes the decomposition of the polymeric material, especially the poly(arylene ether) component, and thereby reduces the possibility of the

formation of gels or black specks in the polymeric material. (See Application, [00013].) By minimizing the residence time of the melt by choice of extruder screw design and by controlling the screw speed and feed rate, fewer gels and specks may form resulting in a cleaner polymeric material. JP63091231 does not teach or suggest the importance of melt residence time in the extruder. Accordingly, as each and every element of claim 1 is not taught by the reference, JP63091231 fails to anticipate the independent claim. Further, as claims 3-13, and 15 all ultimately depend from claim 1, they too are not anticipated by JP63091231.

It is further noted that claim 10 requires the melt filtration system to be maintained at a temperature of about 260°C to about 380°C. There is no teaching in JP63091231 as to the temperature of the filtration system or the importance of the melt filtration system temperature. Accordingly, as this limitation is not taught by the reference, claim 10 is not anticipated.

Applicants respectfully request reconsideration and removal of the § 102 rejections.

Conclusion

It is believed that the foregoing remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are respectfully requested.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 50-1131.

Respectfully submitted,
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